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THE PRESERVATION AND CONTROL OF OUR FORESTS.

BY

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THE PRESRVATION AND CONTROL OF OUR FORESTS.

BY HON. JOSEPH B. WALKER OF CONCORD.

While passing up the Concord and Montreal Railroad, a few years ago, I chanced to occupy a seat with one of the editors of the *Providence Journal* who had been employed by the United States government to look after the interests of some of its Indian tribes at the West. To the question, "Will the Indians accept civilization?" his reply was, "Oh, yes, for a time, but when he comes in sight of the woods, he'll run."

Now, Mr. Chairman, I confess to a love of the woods myself, and if it is a guilty love, I imagine from your looks that I could convict most of you of a like sin, by calling you to a similar acknowledgment.

What is more in accord with our deeper, better feelings than the dim arches of the primeval woods? What more cheering than the bright sunshine reflected from the light boles of a deciduous copswood as one tramps through it, gun in hand, perhaps, and on snow-shoes? What grander sight than that of one of our stalwart old pines which was in vigorous youth when the red man owned New Hampshire; which was a silent witness of the bloody contests of our forefathers with their French and Indian enemies, of their crucial struggle for independence with their maternal foe, and of all the events of our subsequent history? Such trees are rare but are still to be found in decreasing numbers in most parts of the state.

THE PRESERVATION OF OUR FORESTS.

Much has been said and written of the preservation of our forests. Much of this has been wise, some of it has been otherwise, aimless and vague. Many have viewed the

subject from their own individual standpoints only. But a few have taken an all-round, comprehensive view of it. As a consequence, conclusions have been reached embodying more or less of truth and more or less of error. It will not do to regard this great subject from a sentimental point of view only, neither will it do to consider it from an economic stand alone. We must survey it on all sides if we would get a correct knowledge of the whole subject.

Now, what is meant by the preservation of the forests? All talk of their preservation will prove uncertain and unsatisfactory until we settle the meaning to be attached to this term, "preservation." When that has been determined, we can discuss the subject with some hope of reaching satisfactory conclusions.

1. It means their protection from needless injury or destruction by fire. Our forests suffer more from fire than from any other cause. If you hesitate to accept that statement, visit the woodlands in the northern part of the state, and you will no longer doubt the truth of it. Examine the territory once occupied by the Carroll woods along the Ammonoosuc, of whose stream an unknown poet once sang, before it was choked by lumber-edgings and sawdust,

"Its sands are diamonds, and its ripples music."

If not satisfied; and desire further proof, visit the Zealand valley, through which, a few years ago, the fire swept for a distance of four or five miles, destroying everything from crest-line to crest-line of the mountains which wall it in. As one penetrates its ghostly shadows, he seems to see upon the fire-blasted ledges which guard its entrance those terrible words which Dante has placed above the door of his Inferno,

"All hope abandon, ye who enter here!"

And, when once within its gloomy precincts, he looks around, oppressed by its silent desolation, Byron's awful Dream of Darkness is liable to spring up in his memory like Banquo's

ghost at Macbeth's feast, and will not down but remain to affright and haunt him.

Yes, the greatest enemy of the woods is fire.

2. The preservation of our forests does not mean that their trees shall never be cut. Their owners cannot afford to hold them on that condition. Mr. Henry, for instance, has recently purchased a tract of some seventy thousand acres, lying mostly on the east branch of the Pemigewasset river, at a cost of about three quarters of a million of dollars. The annual interest alone on this sum is forty-five thousand dollars. Besides this, there is a yearly tax and a fire risk which would doubtless raise this sum to at least fifty thousand dollars—a larger contribution than he can be reasonably asked to make in the interest of mere sentiment.

We have, indeed, in all, some three or three and a half millions of acres of forest in this state, worth at ten dollars an acre, thirty or thirty-five millions of dollars. To let all this stand a single year with no cutting would cost its owners, in bare interest, from one hundred and sixty to two hundred and ten thousand dollars.

And just here, perhaps, the sentimentalist may say that the growth would pay that interest. Would it? If it would pay even four per cent. in addition to taxes and insurance, the investment would be a fair one. But it will not. We have in the northern part of the state primeval forests which the ax has never entered, estimated to contain some five hundred thousand acres. These contain no more wood and timber than they did when Columbus discovered America. Trees, like men and women, attain their maturity, then decline and die. Their lives are limited. A ripe tree, instead of growing the interest on its value, loses it year by year, until its entire value is dissipated by decay. The preservation of the forest does not mean the leaving of mature trees to stand uncut.

3. But the preservation of the forests does mean a discontinuance of the ruthless and indiscriminate slashing so often,

too often, practised in our woods. Many an owner, with a stupidity which is stupendous, cuts his wood and timber here and there upon his lot, wherever a temporary convenience or caprice may suggest, with no reference whatever to his own interest. Those of you who may have passed over the carriage road in the Crawford Notch of the White Mountains, within a few years, must have noticed a brutal slaughter of this kind, where a scattered growth of gnarly birches, intermingled with trees of other kinds, had been cut for the little merchantable timber afforded by their crooked trunks; while their branching tops had been left upon the ground to invite the fire, and spoil for thousands the beauty of the ride through that imposing pass.

4. The preservation of our forests means also the maintenance in thrifty condition on every farm in the state of a forest area duly proportioned to the size of that farm. The New Hampshire farmer should be as careful to include wood and timber in the list of his farm products as to number those of corn or grass among them. This he once did. A part of the descriptive phraseology formerly used in the notices of farms offered for sale was "suitably divided into tillage, pasture, and woodland." That phraseology ought not to be allowed to become obsolete. We have in the state some thirty thousand farmers. If their farms were thus "suitably divided," the forestry interest would have a strong body of men to improve and guard its welfare. While their field work would afford them occupation for three fourths of the year, their woods would furnish to them remunerative occupation during the winter months.

In short, the preservation of our forest means, such a rational management of them as will secure to their owners, at stated times, the most remunerative returns which they are capable of affording. If the interests of our water-power, scenery, and climate are to be regarded, this management must be so regulated as not to ignore them.

We have in this state two systems of forestry—if we may

be allowed euphemistically to call our such practice forestry —when strictly speaking they are not.

In some sections, wood and timber are of value, and clean cuttings, every twenty or thirty years, are in vogue, as the best and most profitable. In such localities, inasmuch as the denuded areas are generally small and scattered, little injury results to either the water-power, climate, or scenery.

In sparsely settled sections, where wood and small timber are of small value, the cutting of selected trees has largely prevailed. The ripe timber only has been removed, with a view to subsequent cuttings, every twenty or twenty-five years, as the trees left standing attain maturity. Following this practice, the owner harvests his crops as they mature, just as the orange grower picks his oranges, from time to time, as they ripen.

In the least populated sections of our state this style of lumbering is doubtless the best. It is the most systematic, and in the long run the most profitable. An ordinary eye will not miss the trees thus removed, the streams will be little affected, and the scenery will not be marred. But how long this practice may prevail is uncertain. The extension of railroads into the forests has greatly facilitated the removal of their products. The pulp industry, which has increased so largely of late, has created a great demand for small spruce and poplar timber, and the cutting of this has now become profitable.

The timber lands in the north part of the state, particularly in the unincorporated sections, are mostly held by few owners and in large tracts. Should they at any time find it for their interest to adopt the practice of clean cutting, extensive denudations and unfortunate results to other interests would be likely to follow.

The future welfare of our forests is in the control of two different parties, viz. :

1. The state.
2. Their individual owners.

I.

What then can a state do for the preservation of its forests?

The forests of this country are one of its most important resources. It is stated in the Census Report of 1880 that, "Could complete returns of the forest crop of the census year have been obtained, it is not improbable that it would be found to exceed \$700,000,000 in value."¹ Returns actually given amount to \$490,073,094.

In 1880, the number of feet, board measure, of long-leaved pine timber standing in the eight states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas was 118,119,200,000, while the cut in these states that same year was 1,195,428,000 feet.² At that rate of cutting, the then existing supply was sufficient to last, without increase, a little less than ninety-one years. The standing white pine timber in the three states of Michigan, Wisconsin, and Minnesota amounted to 84,170,000,000 feet,³ and the cutting during the census year of 1879-'80 to 7,035,507,000 feet, the then existing supply being sufficient to last, without increase, about twelve years.

The capital invested in lumbering in the United States in 1880 was \$181,186,122, and the average number of hands employed was 147,956.

Statements of this kind, which could be multiplied to almost any extent, suffice to show the importance of this great interest. While in some states the forest areas are very large, allowing lumber exportations; in others, they are very small, necessitating its importation. But, sad to say, in nearly all, the timber supply is diminishing year by year. At present rates of cutting, it will be practically exhausted in most of them in a generation, unless early means be taken to increase the growing supply.

It is a conclusion hard to avoid that a timber famine is

¹ Census of 1880, Vol. 9, p. 485.

² Census of 1880, Vol. 9, pp. 516, 519, 520, 521, 524, 531, 537, 541.

³ Census of 1880, Vol. 9, pp. 551, 554, 558.

inevitable, sooner or later, if nothing be done to avert it. Can it be averted? That it can, there is no reasonable doubt. Will it be? To this question we are unwilling to give a negative answer, and we do not dare to give an affirmative one. As before remarked, the destiny of our wood and timber lands is in the hands of two parties; the state being one of them and their private owners the other. Of the duties of each of these it is our purpose to speak.

Its forests are one of every state's important resources, and it is as much in duty bound to protect this as any other. The evils to which they are exposed are various, and most of them serious.

One of the greatest of these is fire. In 1880, forest fires swept over 10,274,089 acres in the United States, causing a loss of \$25,462,250. Two hundred and sixty-six of these were caused by the burning over of land to improve its pasturage; fifteen hundred and fifty-two by the clearing of land; five hundred and eight by locomotives; six hundred and twenty-eight by hunters; seventy-two by campers; thirty-five by smokers, and two hundred and sixty-two by persons instigated by malice. At a single dollar per acre this loss amounts to more than ten millions of dollars. As very few of this whole number of over three thousand (3,323) fires can be considered as unavoidable accidents, the loss entailed thereby most be regarded as unjustifiable and wicked.

That such accidents occur, to a greater or less extent, every year, is largely due to the fact that no sufficient means are instituted to prevent them, or indeed can be, without stringent legislation by the state. The individual owner may be ever so careful, yet, if his woods are exposed to the dangerous practices of careless neighbors, hunters, campers, and others who do as they like, with little or no restraint, he is helpless, and liable to suffer serious loss at any moment.

Prevention is to be found in the enactment and enforcement of wise laws upon the subject by state authorities. If such, when they already exist, are found ineffective, it is

quite often due to the inefficiency of the penalties which they provide, and to a public indifference to the injury or destruction of wooded property by fire.

This indifference will prove surprising to any one who shall give to it a little attention. He will find that, while the burning of an isolated structure worth five hundred dollars, or even less, will draw together a large collection of people, the conflagration of a timber-lot, worth five thousand dollars, or much more, on the confines of the town, will be of but little interest to any one but its owner, or to the proprietors of adjoining lots endangered thereby.

This remark, so universally true, has been suggested by a recent experience of the speaker. A fire broke out in the edge of a wood-lot belonging to him, endangering a small cottage and barn near by. An alarm was given, and one or two fire companies responded. When they had extinguished all fire near the buildings and so wet the ground as to avert further danger, they considered that they had done all required of them, and made preparations to leave the scene; although the fire was still raging in the woods close at hand, and liable, if not extinguished, to run over a thousand adjoining acres.

When a remonstrance was made, and a detail asked for to aid in the fire's arrest, the foreman replied that he was unaware that he was authorized to fight a fire in the woods. Pretty urgent language, accompanied by an explicit demand for help, on the ground that the property then burning was taxed toward the support of the department which he represented, was required to secure the aid asked for. But this foreman could hardly be blamed, inasmuch as he faithfully represented the prevailing indifference of the public opinion around him.

Since this occurrence, the attention of the general court has been called to the subject, and a statute enacted, in which provision is made for the better protection of forest property, in these words :

The selectmen of towns in this state are hereby constituted fire wardens of their several towns, whose duty it shall be to watch the forests, and whenever a fire is observed therein to immediately summon such assistance as they may deem necessary, go at once to the scene of it, and, if possible, extinguish it. In regions where no town organizations exist, the county commissioners are empowered to appoint such fire wardens. Fire wardens and such persons as they may employ shall be paid for their services by the towns in which such fires occur, and, in the absence of town organizations, by the county.

If it be objected that the wooded sections of a state are generally sparsely populated, and that the execution of such a provision may prove difficult, it can be said in answer that the ægis of a state is commensurate with its utmost limits, and that it is no more difficult for a fire warden to discharge his duties in such localities, than it is for a county commissioner or deputy sheriff to execute his.

Inasmuch as the act just referred to shows in part the present status of the forest question in New Hampshire, where it has been much discussed since 1885, I have ventured to present it entire, for your information and consideration.

AN ACT FOR THE ESTABLISHMENT OF A FORESTRY COMMISSION.

Be it enacted by the senate and house of representatives in general court convened:

SECTION 1. There is hereby established a forestry commission, to consist of the governor, *ex-officio*, and four other members, two Republicans and two Democrats, who shall be appointed by the governor, with the advice of the council, for their special fitness for service on this commission, and be classified in such manner that the office of one shall become vacant each year. One of said commissioners shall be elected by his associates secretary of the commission, and receive a salary of one thousand dollars per annum. The other members shall receive no compensation for their services, but shall be paid their necessary expenses incurred in the discharge of their duties, as audited and allowed by the governor and council.

SEC. 2. It shall be the duty of the forestry commission to investigate the extent and character of the original and secondary forests of the state, together with the amounts and varieties of the wood and timber growing therein; to ascertain, as near as the means at their command will allow, the annual removals of wood and timber therefrom, and the disposition made of the same by home consumption and manufacture, as well as by exportation in the log; the different methods of lumbering pursued, and the effects thereof upon the timber-supply, water-power, scenery, and climate of the state; the approximate amount of revenue annually derived from the forests of the state; the damages done to them from time to time by forest fires; and any other important facts relating to forest interests which may come to their knowledge. They shall also hold meetings from time to time in different parts of the state for the discussion of forestry subjects, and make an annual report to the governor and council, embracing such suggestions as to the commission seem important, fifteen hundred copies of which shall be printed by the state.

SEC. 3. The selectmen of towns in this state are hereby constituted fire wardens of their several towns, whose duty it shall be to watch the forests, and whenever a fire is observed therein to immediately summon such assistance as they may deem necessary, go at once to the scene of it, and, if possible, extinguish it. In regions where no town organizations exist, the county commissioners are empowered to appoint such fire wardens. Fire wardens and such persons as they may employ shall be paid for their services by the towns in which such fires occur, and, in the absence of town organizations, by the county.

SEC. 4. Whenever any person or persons shall supply the necessary funds therefor, so that no cost or expense shall accrue to the state, the forestry commission is hereby authorized to buy any tract of land and devote the same to the purposes of a public park. If they cannot agree with the owners thereof as to the price, they may condemn the same under the powers of eminent domain, and the value shall be determined as in the case of lands taken for highways, with the same rights of appeal and jury trial. On the payment of the value as finally determined, the land so taken shall be vested in the state, and forever held for the purposes of a public park. The persons furnishing the money to buy said land shall be at liberty to lay out roads and paths on the land, and otherwise improve the same under the direction of the forestry commission, and the tract shall at all times be open to the use of the public.

SEC. 5. This act shall take effect upon its passage.

[Approved March 29, 1893.]

Thus far, there has been no such thing as forestry in this country. Until recently, the need of it has been but little felt. The statistics hereinbefore presented, as well as numberless others which might be adduced, show that our primeval timber supplies have not yet been exhausted. Nature, too, has been and is reforesting many sections formerly denuded, wholly or in part. But the time is not distant when a more rational treatment of our woodlands will be an absolute *sine qua non* to a home supply of wood and timber.

The states should be the first to see the fact and provide means to secure it. One or more schools of forestry, like those abroad, should be instituted by each, or special courses for the teaching of its principles and practice, established in existing institutions. This would result, we doubt not, in a speedy improvement of the management of wooded property, and in season, perhaps, to save the country from a timber famine which it is sure to experience, if the present reckless system of forest destruction is continued for another generation.

It is difficult for any party to control the management of property of which he is not the owner, or in which he has no vested interest. (Some of the states of this Union have no forest possessions, while others have them in very small holdings. This, doubtless, is one reason why so many have interested themselves but little in the welfare of such property. Were they to acquire it to considerable amounts, by purchase or otherwise, they would be likely to see the importance of so managing it as to conserve the prosperity of the other great interests more or less connected with it, and so as to derive from it a reasonable and regular income.)

To do this would require careful study of its condition, capacity, management, and environment. A wise use of such knowledge would doubtless secure the end sought, and, if subsequently scattered by official reports among the people, private owners would be influenced to a more rational management than they have hitherto adopted, forest

culture would in time become the safe and profitable business in this country which it has long been in Europe.

Our woods are yielding under nature's tutelage but a fraction of what they might produce under skilful culture.¹ It is as idle to trust for a satisfactory crop of timber to nature's capricious sowing of the necessary seeds, as it would be if one sought in that way a crop of maize or wheat. God's primal curse of the ground evidently meant that it should thereafter yield its highest returns only in response to men's wise control of its potencies.

We do not hesitate, therefore, to urge the acquisition by states of tracts of forest to be held for the conservation of their water-power, the amelioration of their climate, the preservation of their scenery and the instruction, largely by object lessons, of the people in good forestry. Aside from the benefit thus derived, they may be made to yield a fair return upon their cost and maintenance.

While extensive forests may be found in some of the states, in many the wooded areas are very small, and their people are largely dependent for lumber upon importations from without. The only hope for a domestic supply in such cases, particularly if forest trees in such localities are not indigenous, is in plantations commensurate with the demands to be made upon them.

But plantations require considerable outlays of capital and a patient waiting for returns. Such investments are therefore not often attractive to private parties and will be rarely made without some encouragement by way of state bounties or premiums. These a state can generally afford to provide, inasmuch as the public good will be thereby promoted. When time has proved such expenditures to be profitable they will be made by capitalists as safe and permanent investments of their money.

One reason for the prevailing indifference to forest

¹ The average yield per acre of timber in the primeval spruce forests of New Hampshire is but about five thousand feet, board measure.

interests may be found in an ignorance of their importance as promoters, in many ways, of the general weal. The remedy for this is at once apparent to any thoughtful person, who will see that it is to be found in a general enlightenment of the public mind. This, of course, must be accomplished by the diffusion of such information upon the subject as shall be necessary. To this effort a state may very properly contribute freely.

For example, a state may very properly insist that systematic forestry be taught in every agricultural institution receiving its aid, or, in any manner, under its control. If deemed wise, it may require the teaching of its elementary principles in its common schools. It may make it the duty of its Board of Agriculture to scatter broadcast information upon it. A state may also adopt such other means to this end as experience shall, from time to time, suggest and the constitutional power of the general court shall permit.

A love of the woods has ever been a characteristic of the Teutonic races of Europe. It has manifested itself in the establishment of public and private parks and game preserves. A country home without surrounding grounds and trees has ever been regarded as incomplete and unsatisfactory.

For a time, this characteristic was not apparent in their descendants in this country, who were so busy in the acquisition of fortunes that they had no leisure for their enjoyment, and, consequently, the love of country life was, for the first six or seven generations, in abeyance. But it was all the while in the blood, and latterly has been making itself manifest, by the acquisition and adornment of private grounds and woods.

There has also been manifested a strong desire for public parks and recreation grounds, to which every one may have free access. Purchases of large tracts of land have been made by many of our cities, and subsequently laid out and adorned at much expense. The extensive parks of Boston,

New York, Brooklyn, and Philadelphia, as well as those of many other cities, furnish illustrations of what has been and is being done in scores of instances in this direction.

A public desire has also been expressed for the dedication to park purposes of still larger tracts in sparsely settled regions ; whose main attractions shall be those of extensive natural forests and streams and mountains, enhanced by the presence of game and fish, of pure air and crystal waters, of silent shades and attractive scenery.

To furnish such, in this country, is necessarily the province of the state. New York has already done a noble work of this kind, by its dedication to the public of the grounds about Niagara Falls. The United States has done still more under a law enacted in 1872, whereby the tract known as the Yellowstone Park, comprising an area of three thousand five hundred and seventy-five square miles, has been "reserved and withdrawn from settlement, occupancy or sale under the laws of the United States, and dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people."

More recently, under an act of congress of March, 1891, the United States has set apart the following forest reservations of the following estimated areas, viz. :

In California, four.

Acres.

(1) The San Gabriel Timber Land Reserve	.	.	.	555,520
(2) The Sierra Forest Reserve	.	.	.	4,000,000
(3) The San Bernardino Forest Reserve	.	.	.	737,200
(4) The Trabuco Canon Forest Reserve	.	.	.	50,000

In Colorado, five.

(1) The White River Plateau Timber Reserve	.	.	1,200,000
(2) The Pike's Peak Timber Land Reserve	.	.	184,000
(3) The Plum Creek Timber Land Reserve	.	.	179,000
(4) The South Platte Forest Reserve	.	.	683,500
(5) The Battlement Mesa Forest Reserve	.	.	858,240

In Oregon, one.

(1) The Bull River Timber Land Reserve	.	.	142,000
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In Washington, one.

(1) The Pacific Forest Reserve 967,680

In Wyoming, one.

(1) The Yellowstone Park Timber Land Reserve (being
an addition of 193,609 square miles to the Yellow-
stone National Park of nearly 5,000 square miles) 1,239,040

In New Mexico, one.

(1) The Pecos River Forest Reserve 311,000

In Arizona, one.

(1) The Grand Canon Forest Reserve 1,851,520

Total area of above 14 Forest Reserves 12,958,700

In addition to the above, should be mentioned the large Afognak Forest and Fish Reserve, whose area at last accounts had not been accurately determined.

Some three years ago, a bill passed the New Hampshire senate, but failed in the house, directing the forestry commissioners to consider, and make report to the legislature at a subsequent session, upon the advisability of devoting to a state park that part of the White Mountain region known as the Presidential Range, in which are situated Mount Washington, Mount Jefferson, Mount Adams, Mount Munroe, with their foot-hills and intermediate valleys, occupying an area of some thirty square miles. While to many the proposition may have seemed chimerical, its realization at a date not distant should not be surprising to such as are cognizant of the fact that ten millions of people and more live within twelve hours' ride or less of this locality.

Were all the great attractions of this region made accessible to view by additional paths and roads, the present large number of visitors would be greatly increased. (Were the principles of an enlightened forestry applied to the management of the great forests concealed in its recesses, they would yield fair pecuniary returns and continue to serve the other offices which they now render.)

But we cannot confess to a great desire for the establishment in this country of extensive private or incorporated parks and game preserves ; such as a decaying feudalism continues to maintain in Europe, and from whose enjoyment the great mass of people are virtually excluded. These are not in harmony with our traditions. Neither can we honestly express great admiration for the sport of running down a few half tamed deer by a noisy cavalcade armed with guns and aided by dogs ; or for that of bagging a flock of domesticated pheasants, as tame almost as hens, when as much success and equal glory might be won at less expense in a sheep-pasture or poultry-yard. Such is not the old manly sport of the woods which our English ancestors formerly pursued in their more manly exertions.

We do, however, confess to a wish to see established in every state of this broad land one or more great public parks, open for refreshment and delight at all times and to everybody. Such grounds in which well kept roads and paths render accessible fine views and streams, quiet valleys and mountain summits, as well as dense forests kept perpetually attractive by intelligent care, might be made very largely, and perhaps entirely, self-sustaining, and would furnish a blessed sanitarium to the thousands sure to frequent them. But such must, in most cases, be established and maintained by the particular states within whose limits they are situated, and as state possessions.

Again, every state should have a well digested code of forest law. Until such has been provided, the treatment of its wood and timber lands will be irregular, and very often adverse to the interest not only of the public but to that of the private owner as well.

But such a code cannot be devised and enacted at once. It must embody the suggestions of local experience and grow to perfection by degrees, just as the irrigation codes of Southern Europe and the railroad codes of this country have done.

The device of such a code is more difficult, inasmuch as our forests are generally the property of private owners and, to a small extent only, that of the state. The state of New Hampshire does not own a single forest acre. When, therefore, individual owners see fit to pursue a course of management which shall be detrimental to the other great interests of the state, and its protection is invoked, intricate questions will be likely to arise to the temporary and, at times, to the long perplexity, perhaps, of its courts.

In time, however, as ultimate owner of all the territory within its limits, the state must assert its sovereign power; and, upon the principle enunciated by Lord Coke, three hundred years ago, that every person must so use his own property as not to injure another (*Prohibetur ne quis faciat in suo quod nocere possit alieno; et sic uterere tuo ut alienum non laedas*), enact such a code as may enure to the highest interest of all its citizens. We fully believe that, notwithstanding any conflict of complex interests which may for a time arise, reasonable regulations will ultimately be consolidated into permanent statute law.

And just here it may be said that the Forestry Commission may confer an inestimable benefit upon the wooded interests of this state by preparing and scattering broadcast among us a digest of the forest laws of the other states, so far as such exist to-day. Imperfect as these may be, they are American and suggestive. Side by side with those of older countries they would aid greatly in the construction of a system for general use with us. It would be unwise, of course, to copy without careful examination laws which have grown out of the experiences of people living under different traditions and differently ruled. Ours must be American, and answer to the demands of the new environments of a new people.

So much in relation to what a state can do for the preservation of its forests.

II.

What now can the individual owner do?

1. He can acquaint himself with the principles and best practices of forestry.

While forestry has been but little studied in this country, it has received much attention from the older countries of Europe, where its principles are as well understood as are those governing the production of grain or roots, or any other agricultural crop. For the scientific and practical teaching of these, schools have been established to which thousands resort, some of whom are owners of estates and of mature age.

When the demand for such schools shall arise in the United States, we shall doubtless have them. Until then the owners of forest property must get the information which they need through books, personal experience, and individual reflection.

2. He can thoroughly acquaint himself with his own forest.

(1) With its area and location. These are two very important factors in reaching a wise determination of the system of management to be adopted. An owner would not treat a forest which is large and remote in the same manner as he would a small one in a thickly settled locality. The latter might pay best if kept for wood only. The former might be most profitably kept for timber. The first might, perhaps, allow of annual cuttings of considerable amounts; the last of only very limited ones, or of larger ones at the ends of periods of considerable lengths.

(2) With the character of its soil and climate. Some soils better suit given species of trees than others. The pitch pine, for instance, likes the sandy plains found here and there in different sections of this state. The elm, the walnut, and the white maple prefer the intervals bordering upon our streams; while the white oaks, the birches, the red and sugar maples, the hemlocks and spruces are most at home on our diluvial, upland soils. Very few trees grow

well on wet soils, and, if they grow at all, they grow but slowly. Trees, like men and women, do best along the lines of their aptitudes, and, if wise, the forester will recognize that fact. I have seen larches thriving on the rocky sides of a Scotch mountain, steep almost to perpendicularity, where a goat could hardly get a foothold ; but a white pine would not flourish there. Few chestnuts or walnuts, if any, can be found in this state north of Winnepesaukee lake ; few cedars and not many spruces south of it.

(3) With the inclination of its surface and altitude. Most of our New Hampshire trees flourish best on southerly and southeasterly exposures. Our hardiest evergreens endure well enough those trending northward. The state stretches north from the Massachusetts line, nearly two hundred miles, increasing from time to time its elevation, the lower Connecticut lake being 1,618 above the level of the sea. We are not surprised, therefore, to find, as we travel in that direction, an increase of cold corresponding to this increase of latitude and altitude. Surprised or not, we shall find a gradual change in the flora, and, if some of our highest mountains are ascended, that all arboreal vegetation of any value ceases before we reach their summits.

(4) Of the varieties of trees found thereon, and to which his land seems best adapted. It is both interesting and profitable to study the inclinations and habits of trees. They vary greatly, and one must understand these to get the most from them. We have in New Hampshire some forty-two species of commercial value. Some love the plains and valleys ; some hill and mountain sides ; some the most sheltered places ; some, like the spruce, delight in cold, and persist in climbing to elevations which dwarf them to shrubs, and stop only when the frost king plants himself in their paths to say, " Thus far shall ye come and no farther."

3. *Regarding his forest as a permanent principle to be forever kept good, he can adopt such a system of management as shall secure to him the greatest annual income therefrom, without lessening its amount.*

In other words, he can treat his wood land as so much fixed capital, the increase only of which is to be removed at stated intervals, just as he would cut the maturing coupons from a bond of the United States. It is indeed the lack of systematic treatment, quite as much as the kind of it, which has so alarmingly injured our forests, and bids fair to harm all other interests connected therewith.

Properly managed our forests are the safest and will yield the surest income of any of our investments. Other things being equal, the amount of return from them will be in proportion to the wisdom embodied in their management. Said an experienced lumberman, some years ago, to your speaker, "If I buy another piece of timber land, which I have thought of buying, a million feet of lumber may be taken from my woods each year forever; inasmuch as the annual growth would equal the amount removed."

The sooner we attain to a systematic management of our forests, the sooner we shall reach an appreciation of their value as a safe investment of capital.

4. If a farmer, he should take as earnest an interest in forestry as in the other branches of the husbandry which he practises.

I hold that one half, at least, of every good New Hampshire farm should be in forest. If properly treated, that half will be the most profitable half. It will require neither ploughing, fertilizing, nor planting at his hands. All the while it will grow richer year by year, and yield crops as long as the world stands. Trees will grow where nothing else of value will, and leave the best land of the farm for pasture and tillage.

We lament the decline of farming in New Hampshire. It is not attractive to our young people, and they avoid it. But farming will become attractive just as soon and as far as it is made profitable; and profitable just as soon and as far as it is well conducted. The remark made to me some years ago by a canny old Scotchman, "This farm of yours,

Mr. Walker, is a good one, but you do n't half carry it on," was about as comforting to its owner as some of the sayings of Job's friends were to him. But it was true all the same. May I believe that it does not apply to any other farmer here present but myself?

The naked, simple fact is, that farming is business, and forestry is business; and that to every one but the sentimentalist, any business is attractive just in proportion as it is profitable.

